

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for producing asphaltic foam comprising the steps of:

providing an asphalt;

liquefying said asphalt;

adding to said asphalt one or more isocyanates, thereby forming a first intermediate mixture;

bringing the temperature of said first intermediate mixture to between about 120°F and 170°F;

forming a second intermediate mixture comprising one or more polyols, a blowing agent, and a surfactant, wherein the second intermediate mixture is segregated from the first intermediate mixture; and

forcing said first intermediate mixture through a first impingement dispensing head;

forcing said second intermediate mixture through a second impingement dispensing head; and

mixing said first intermediate mixture forced through said first impingement dispensing head with said second intermediate mixture forced through said second impingement dispensing head, thereby forming a final reaction mixture, wherein said first intermediate mixture and said second intermediate mixture react and expand in a controllable manner such that the final reaction mixture does not expand beyond a form desired in a final molded asphaltic foam or cure before taking on said form to produce said asphaltic foam.

2. (Original) The method of Claim 1, wherein the asphalt comprises the following components:

about 12-13% by weight asphaltene;

about 9-12% by weight saturated hydrocarbons;

about 38-44% by weight polar components; and

about 35-38% by weight naphthalene aromatic constituents.

3. (Original) The method of Claim 1, wherein the second intermediate mixture comprises at least one additional ingredient selected from the group consisting of catalyst and fire retardant.

4. (Original) The method of Claim 1, wherein the surfactant is a silicone surfactant.

5. (Original) The method of Claim 3, wherein the catalyst is a curing catalyst.

6. (Original) The method of Claim 3, wherein the fire retardant is TCPP.

7. (Original) The method of Claim 1, wherein the isocyanate is polymeric methylene diphenyl diisocyanate (MDI).

8. (Original) The method of Claim 1, wherein the first intermediate mixture comprises about 1:1 to about 1.5:1 polyisocyanate:asphalt.

9. (Original) The method of Claim 1, wherein the polyol is an amino-based polyol.

10. (Original) The method of Claim 1, wherein the blowing agent is selected from the group consisting of water, halocarbons, and mixture of ethanol and dibutylphthalate.

11. (Original) A method of forming a ridge cap or roofing tile comprising the steps of:

providing a conveyor belt;

applying a granule layer to said conveyor belt;

providing a mold with a top side open;

filling the mold with a reaction mixture produced by a method of Claim 1;

applying the mold with the open side down on said granule layer; and

curing the asphaltic foam; thereby forming the ridge cap or roofing tile.

12. (Original) The method of Claim 11, additionally comprising the step of forming an indentation on said granule layer after applying the granule layer on said conveyor belt.

13. (Original) The method of Claim 11, additionally comprising the step of applying a second granule layer having a contrasting color compared to the color of said first granule layer.

14. (Original) The method of Claim 11, wherein said mold comprises an indentation.

15. (Original) The method of Claim 11, further comprising applying a strip of modified asphalt onto the granule layer before applying the asphaltic foam.

16. (Original) The method of Claim 15, further comprising applying a fire resistant roofing underlayment onto the strip of modified asphalt.

17. (Original) The method of Claim 16, wherein the fire resistant roofing underlayment is a coated substrate product with fire-resistant qualities.

18. (Original) The method of Claim 11, wherein the second intermediate mixture comprises at least one additional ingredient selected from the group consisting of catalyst and fire retardant.

19. (Original) The method of Claim 18, wherein the catalyst is a curing catalyst.

20. (Original) The method of Claim 11, wherein the surfactant is a silicone surfactant.

21. (Original) The method of Claim 11, wherein the isocyanate is polymeric methylene diphenyl diisocyanate (MDI).

22. (Original) The method of Claim 11, wherein the first intermediate mixture comprises about 1:1 to about 1.5:1 polyisocyanate:asphalt.

23. (Original) The method of Claim 11, wherein the polyol is an amino-based polyol.

24. (Original) The method of Claim 11, wherein the blowing agent is selected from the group consisting of water, halocarbons, and mixture of ethanol and dibutylphthalate.

25. (Previously presented) The method of Claim 1, wherein the mixing step produces an initial cream time in which the final reaction mixture thickens.

26. (Previously presented) The method of Claim 1, wherein the initial cream time lasts for about 15 to 20 seconds.

27. (Previously presented) The method of Claim 1, wherein the mixing step lasts about 2 to 6 seconds.

28. (Previously presented) The method of Claim 25, wherein the initial cream time is followed by an expansion stage in which production of CO₂ causes expansion of the final reaction mixture.

29. (Previously presented) The method of Claim 1, wherein the blowing agent volatilizes during the expansion stage.

30. (Previously presented) The method of Claim 1, further comprising placing said final reaction mixture in a mold or placing a mold around the final reaction mixture;
- expanding the final reaction mixture in the mold; and
- curing the expanded final reaction mixture.